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# AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY  
DEVOTED TO PHOTOGRAPHY  
IN ITS WIDEST SENSE

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Vol. XX

JULY, 1900

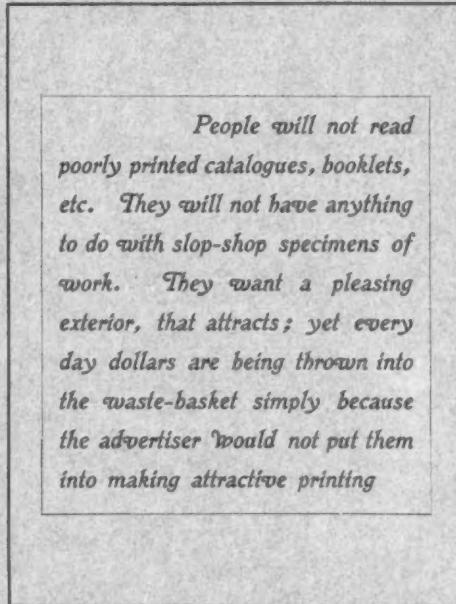
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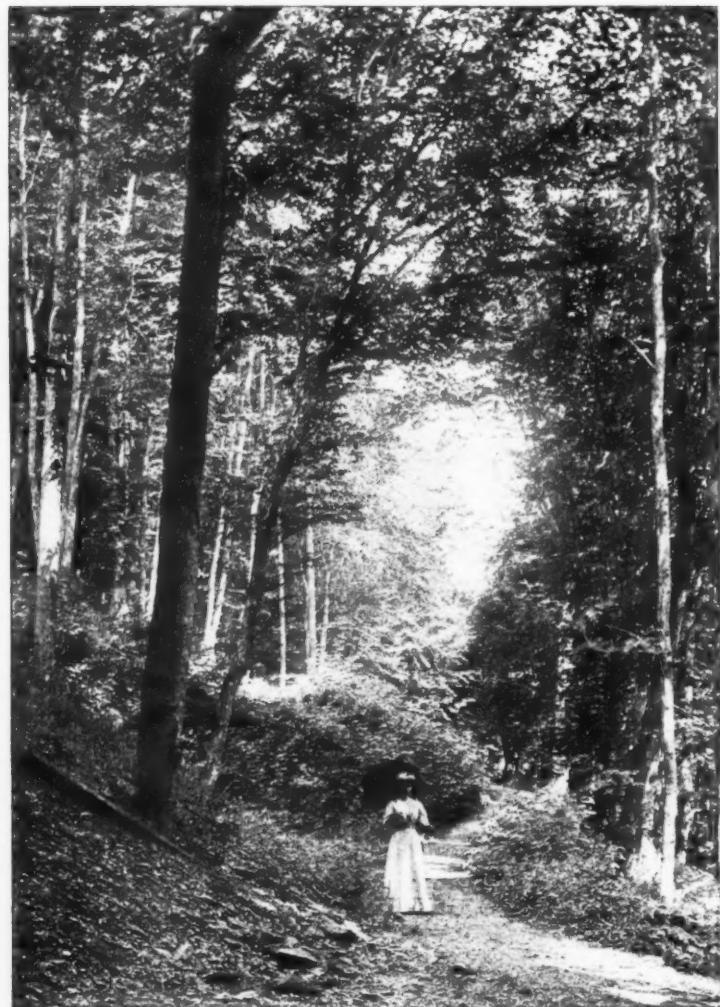
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AMERICAN JOURNAL OF PHOTOGRAPHY—JULY, 1900



A Lovely Day in June

H. HAMBERGER

# AMERICAN JOURNAL OF PHOTOGRAPHY

AUSTIN C. LEEDS, Publisher  
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VOL. XX

JULY, 1900

No. 235

## MEXICO THE MARVELOUS

*The Camera Among the Smoking Snow-Capped Volcanoes of the  
Sierra Madre*

CHARLES W. MACFARLANE

**T**HREE are few places that would lend themselves more freely to the deft fingers of poetry and romance than the fair and far-famed valley in which lies the metropolis of Mexico.

Her climate, scenery and history all vie with each other to challenge our wonder and admiration.

Set high amongst the embosoming mountains at an elevation of some 7000 feet above the sea, this fair vale seems to disarm and defy the noon-day fervor of a tropical sun, for though within 20 degrees of the equator, we find a mean annual temperature of but 60 degrees F. Nor is its scenery less peculiar though more varied than its climate.

To the west, beyond the historic heights of Chapultepec, fair rolling hills; to the south rich meadow lands, that alternate twixt lakes, both salt and fresh, o'er whose unruffled fronts, in the brave days of Aztec glory, floated gardens decked with flowers of a thousand gorgeous hues. Then too, strange setting to the pastoral quiet of the vale below, bare rugged mountains wall round the scene, and in full view from roof tower and dome of the city, great towering snow-capped volcanoes rear their white heads, as though to insult high-heaven with their sulphurous smoke.

What scenes have they not looked down upon, for here within their shadow's great length ere yet the thought was born that this world of ours was round, nations and dynasties with all their warp and woof of history and romance had risen, flourished and disappeared beneath successive waves of barbarian invasion.

And yet despite all this, we make our yearly pilgrimages to Europe, talk familiarly of the Jungfrau and the Matterhorn, boast, it may be, of our ascent of Mount Blanc, and all the while ignore the fact that here upon our own continent we have peaks that top all Europe. Not a single *peak*, but *peaks* that even in the regal presence of a tropical sun, never doff their white caps of eternal snow.

A Nevada de Toluca, a Perote, an Iztaccihuatl, an Orizaba, not to mention great Popocatepetl, that piling of Pelon upon Ossa until it reaches the breath-catching height of nearly 5000 feet above the summit of Mount Blanc.

It is not well, however, if guide books may be believed, to attempt these great heights until after a residence of several days in the vale below, for even there you are at an elevation of some 7000 odd feet above the sea, and may well believe one finds breathing difficult.

Let us glance for a moment at this fair vale and the region round about. The clearness of the atmosphere is apt to mislead the judgment in estimating distance and in photography, one misses the artistic deception which in our own eastern climate lends a far-off view to a scene only a few miles away.

Close by on the shores of Lake Texcoco we have the City of Mexico, while south-east we have the great snow-caps seen from the City. Here Iztaccihuatl, or the White Woman, and



Popocatepetl—From Aztec Pyramid

FROM COLLECTION OF  
W. H. RAU



Native Adobe Huts

FROM COLLECTION OF  
W. H. RAU



Nochistongo Cut, with Canal - Tajos

FROM COLLECTION OF  
W. H. RAU



Native Hut

FROM COLLECTION OF  
W. H. RAU

a few points south great Popocatepetl itself. There are several lakes in the prospect, the higher of these nearest the great snow-caps being fresh water, but as they drain down towards the lower lakes in the north, the partial evaporation increases the density of the water until in Lake Texcoco, we have a very pronounced salt-water lake, which, as it is at an elevation of 7000 feet above sea level, is therefore the highest body of salt water in the world.

So completely is this valley of Anhuac walled around by mountains that no outlet is afforded for the waters of this lower lake towards either ocean, and as the City is but little above the level of the lake, any unusual rise of the water threatens an inundation. At one time the major portion of the City was under water to the depth of four feet for a period of five years, until a very accommodating earthquake came along and cracking the ground afforded an exit for the surplus waters.

To prevent any repetition of such an occurrence, the authorities undertook the stupendous feat of a fifteen mile open cut through the lowest point in the mountains, so that any unusual rise of the Lake might find its way to the Gulf. Our view shows the celebrated cut which is called Nochistongo. It is estimated that in its construction at least 75,000 lives were sacrificed for the general good of the community—15,000 it is said perished at one time by the premature sliding of the banks.

Approaching the City from the north, or along the line of the Mexican Central R. R., you pass through, or rather along, the perilous edge of this veritable Valley of the Shadow of Death, and entering the fair vale you are soon in full view of the suburban residences of the Mexican four hundred.

Everybody has heard of the Mexican adobe. The walls are built of large blocks of sun-dried mud, and the roof is constructed by laying saplings across the walls and covering them also with mud to the depth of five or six inches. In a region where rain seldom falls for a period of six to nine months, the mud soon dries and serves the purpose of protection well enough.

There is but one opening, which serves as door, window, and chimney, and but one floor which is literally the ground floor.

Of course there are grades of these humble residences ; some are provided with a board floor and tidy furnishings, and it is a novel and pleasant sight to watch the women making tortilla while regaling a friend with the latest gossip of the neighborhood.

More frequently, however, the adobes are furnished with little else than a crucifix, an earthen jug for water or pulque and a three-legged stone on which they grind the corn for their tortilla or native bread.

But the conductor's cry of *Meeee* warns us that we are fast nearing the metropolis. In entering any strange city it is well to fix upon some central point to which you can return from your various excursions ; and as in the City of Mexico, all street cars, no matter where bound, pass round the Plaza Mayor, this establishes itself as the most available place for departure and return.

We see the far-famed Cathedral to the north, but as we shall visit this place later on, let us first make an excursion or two to the suburbs,—one to the West to the historic heights of Chepultepec and the Plaza de Toras, where take place the bull fights ; another to the South to the Chinampas or Floating Gardens.

But before starting upon either of these trips, let us have a look at the Plaza, with its walks, plants and shade trees. Here on Sunday morning while the great organ in the adjacent Cathedral makes the air tremble with sublimest harmonies, the military band in the Plaza mingles strains from the lightest of light operas.

In the back-ground of the view we have the palace, built upon the site of Montezuma's ancient palace, now the Municipal building. While it covers a very large area, architecturally, it is neither imposing in general design nor specially interesting in detail.

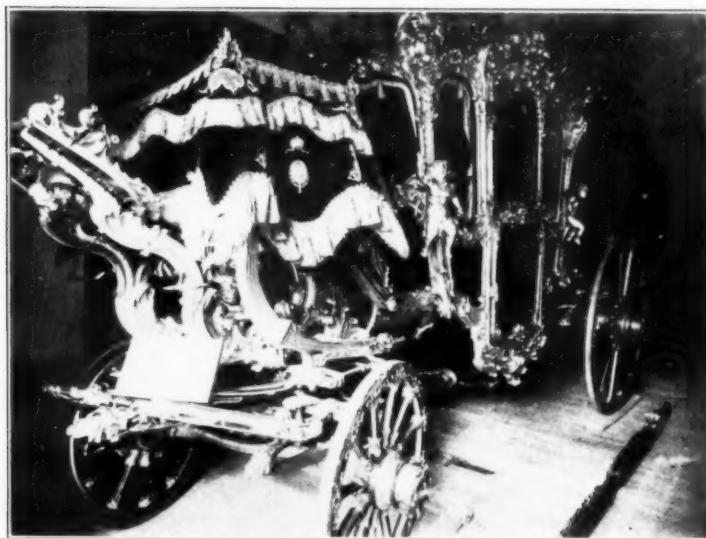
Within the palace, however, we behold the relics of Maximilian's ill-fated dream of Empire on this Western Continent, the Imperial Carriage which, in the richness of its appointments, is said to outrival anything of the kind in Europe.

Returning to the Plaza and facing the north you have a grand view of the Cathedral, which despite its stereotyped combination of tower and dome, the style so prevalent all over



Cathedral—City of Mexico

FROM COLLECTION OF  
W. H. RAU



Maximilian's Coach

FROM COLLECTION OF  
W. H. RAU



Fountain of the Falling Water—City of Mexico—Terminus of  
Maximilian's Aqueduct

FROM COLLECTION OF  
W. H. RAU

Mexico, is yet most imposing in its proportions, and covering, as it does, an area nearly twice the size of the main building of the Girard College, Philadelphia, is the largest ecclesiastical structure on the Western Continent.

Let us again pass round to the left and looking westward we shall have a characteristic street scene—a view of the Calle de Plateras or Street of the Jewellers. This is the Chestnut Street or Broadway of the City of Mexico, many of the stores being quite modern in the appointments.

Still facing west we have a view of the Portalis or Mexican Bowery, or South Street, where cheap things are for sale.

Here we may see one of the most familiar scenes in the City, and indeed all over the Upper Plateau, a caravan of donkeys, or burros as they are called.

The most novel street scene is perhaps that furnished by the Aquadore or Water Carrier. The water supply is brought into the City by means of brick or stone aqueducts, and from this it is distributed to fountains throughout the City, and from these receptacles to the private houses by the Aquadores. They wear badges and uniforms and are really as much officers of the Municipal Government as the police. They keep their accounts by leaving a bean at the house with each jug of water,—a certain number of beans calling for a specified amount of water, depending upon the distance of the house from the fountain.

Fortunately the car in which we are riding passes right by one of these aqueducts built some three hundred years ago, or during the Spanish ascendancy. It is richly if not handsomely ornamented with a fountain.

As the car passes along we notice a Cargedore or porter. What a good stalwart Cargedore can carry on his back is beyond comprehension. I have seen miserable specimens carry with apparent ease, loads that would stagger the brawnliest hotel porter here. Wagons are not a very familiar sight in the City of Mexico, most of the carrying being done by these Cargedores or by the Mexican fast freight line, the burro or donkey.

[TO BE CONTINUED.]

## SIMULTANEOUS CONTRAST OF COLOR

J. KAY

In a recent number of your JOURNAL, I was much interested in a paper entitled "Perspective and the Mount," in which the novel assertion (at least novel to me at that time) was made that the peculiar tint of the mount affected the perspective of the landscape, making the distance advance or recede. I doubted the assertion and was convinced only by making an experiment as suggested with simultaneous contrast of colors. On looking up the subject, I came across Church's work on color. He shows that striking examples of simultaneous contrast are afforded by the contiguity of a single color, with white, grey and black.

On colorless grounds of different brightness, the effect produced would hardly be believed. All colors seem brighter on a black ground and darker on a white ground; the effect of grey ground depends upon the relations subsisting between the tone of the grey and the tones of the several colors.

The alterations suffered by various colors in contact with neutral grounds may be best studied by means of colored strips or disks of paper, placed upon large surfaces of white, grey or black, and viewed in a rather strong light.

Such experiments should always be supplemented by a converse series in which strips of white, grey and black are placed upon self-colored grounds. In the latter series we often obtain very marked examples of simultaneous contrast.

The brightness of a white ground is however so much greater than that of most pigments placed upon it, and the brightness of the black so much less, that in neither case do we fulfil the exact conditions necessary to produce the full effect of simultaneous contrast of hue, but still sufficient for observing the phenomenon.



**On the Bosom of the Deep**

NEWTON W. EMMENS

It will be found that a dark grey tint answers well for the purpose.

We shall notice that the grey, though identical in color, on all the strips used appears tinctured with bluish green on a red ground, with blue on the yellow ground, with purple on the green ground, with green on the purple ground and with yellow on the blue ground.

Each of the grey disks is tinged with color complimentary to the ground on which it is laid.

The same result is observed when black figures are printed on colored grounds.

With grey disks on colored grounds the complimentary color produced is strongest in the case of red, orange and yellow

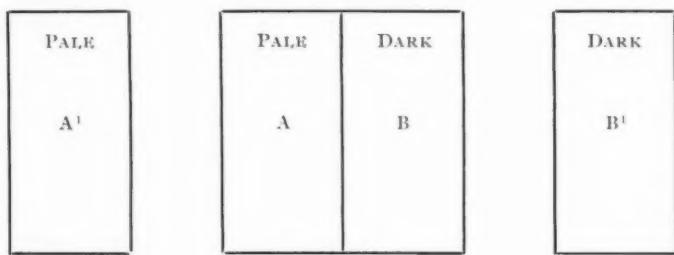


Fig. 1

grounds, where the grey strip is rather darker in tone; the reverse is true with green, blue, violet and purple.

Contrast caused by difference in brightness, is commonly called contrast of tone.

This kind of contrast may occur alone, or it may be associated with contrast of hue and contrast of purity.

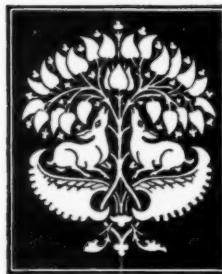
An element always to consider is the background. Whether black, white, grey or colored it must necessarily differ in some one direction from one or both of the trial pieces laid on it and therefore itself produces a contrast.

Take two strips of pale grey (A and A¹), Fig. 1, and place them a few inches apart on a large sheet of paper in a good light. We then prepare two similar strips of a considerably

darker shade of grey, B and B<sup>1</sup>, and place them as shown in the diagram one alongside of A, and the other the same distance from B as A<sup>1</sup> is from A.

Upon steadily looking at the four strips for a short time, it will be seen that A close to B appears lighter than A<sup>1</sup> which lies at some distance, while B appears correspondingly darker than B<sup>1</sup>.

I am fully convinced, theoretically as well as practically, that the hue of the mount of the photograph affects the perspective, and that selection should be guided by the law of simultaneous contrast of color.



## ON PRINTING IN CLOUDS

SEMPER EADEM

**H**OW often is it, when a landscape has been selected and the lighting proves satisfactory, that the expanse of sky which demands inclusion is beautified by the presence of varied forms of clouds which are requisite to set off the picture? And, even when the photographer is fortunate



The Old Bridge

CHARLES J. CARROLL

in viewing above his selection a charming crown of light fleecy clouds, with what frequency is he successful in securing them on the same plate as the landscape without sacrificing the latter by under-exposure for the sake of retaining the clouds? Thus generally in the simple finished print the sky is a blank, uninteresting, white expanse, which is so fatal as to prove

quite sufficient to discount any beauty which may exist beneath its canopy, and destroy what might otherwise be a picture. On the other hand, with suitable clouds, often a very ordinary photograph can be so improved as to really merit the higher title of "picture," notwithstanding that it may still have its weak points.

Somehow or other, numberless amateurs, even those who would indignantly repudiate the designation "tyro," seem to have got it into their heads that to print *in* clouds is a feat quite beyond their powers of performance, and despite every assurance to the contrary, they will persist in believing that it is on a par with the Labours of Hercules; and so still their prints are finished with their ghastly white skies, and not even an attempt is made to sun down the most glaring.

At least, why will not the P. O. P. printer try what he can make of printing in a cloud or two? "Nothing beats a trial" is a wise maxim, and one which the fatalist in photography would do well (*pictorially*) to take to heart. Certainly, printing clouds in platinotypes, bromide, carbon, and other unseen, or comparatively unseen, printing processes is a more formidable undertaking, but even here a little care will accomplish much, as the writer hopes in due course to show.

But first to generalities. The landscape or pastoral photographer should be as keenly on the outlook for pictures overhead as for those more on a level with his eye. Readers of this paper have so often obtained full instructions in taking cloud negatives that it is only wasting valuable space to repeat them here. The writer, at the outset of a career photographic, endeavoured to print clouds in half-plate prints from half-plate cloud negatives, proceeding in the orthodox fashion, using the back of a printing frame to support the print and negative over it, and holding the whole in the sun (or apology for it) during the entire operation. In cold winter weather, with the sun in hiding, it was quite an heroic undertaking to stand at the open window and shiver, with fast freezing fingers, for a period of time varying from fifteen to thirty minutes until the clouds were "done." Nor, apart from this drawback, was the method satisfactory. Where the view was taken horizontally, whether the clouds fitted in well or no, there was no choice, the sky negative being of the same size as the print, of necessity could

only be placed squarely over the print so as to cover it entirely —this obviously ; and yet often the clouds were not desirable in the place where they coincided with the print.

Though this disadvantage disappeared when a vertically taken landscape print was placed under a horizontally taken cloud negative, there was the awkwardness of shading the lower portion of the photograph, necessarily uncovered by the cloud negative, from the light. Again, in both cases, when the light was bad and printing prolonged in the frequent compulsory examinations of the print, either negative or print was very apt to slip and double printing result. A way out of all these troubles occurred to the writer, and that by utilising whole-plate cloud negatives for printing into half-plate prints. Printing was then done in a whole-plate printing frame, when all previous difficulties and annoyances at once disappeared. The advantages accruing from this plan were enormous, and should be obvious to every one. Hands were free, and there was considerable choice in the available expanse of negative of that part most suited to the particular print. Of course, initially, some extra trouble is involved, but it is more than repaid in the subsequent ease of procedure, etc., it affords. From the original cloud negatives first of all are made transparencies. To the lantern-slide maker this will present no difficulties, but others may prefer to use the useful Novitas stripping P.O.P. (most simple to use), and transfer these prints to glass. From these enlargements to double the diameter of the prints to be "clouded" are made ; that is to say, quarter-plate prints will require a half-plate cloud negative, and half-plates a whole-plate negative. Each individual must decide for himself what he will make the medium of his enlargements—whether he will use film plates, or Wellington negative paper. Films, though, of course, the most expensive, are undoubtedly the best for the purpose, since they can be printed from either side, and celluloid, being almost as transparent as glass (the cloud image in any case being thin), the landscape print, when fastened down in the frame, will show through the negative very clearly—quite a necessity for exact masking. While the Wellington negative paper has the great merit of being the cheapest and at the same time a very excellent material, which like films, can be used either side up in the frame, yet neces-

sarily it has not the same degree of transparency, which, for our purpose, is the great advantage of the former, and even when a very thin negative is made thereon, and, with a very bold print underneath, it is seldom that the outlines of the latter can be distinguished through the negative in the same way as through films; not, indeed, unless it be held up to the light, which, for the purpose of adjusting masks, is seldom practicable. Plates, in price coming between films and negative paper, can, of course, only be printed from one side, this constituting their drawback; but, of course, they print as expeditiously as films, which is not the case with negative paper, though the latter is astonishingly grainless.

For those who never used this paper, and think of trying it for this purpose, it may be remarked that its manipulation presents no special trouble, being almost identical with the working of bromide paper. However, whatever material be used, metol is the developer recommended to secure a nice soft, thin, quick-printing enlargement, full of detail, and such a one any amateur who can enlarge should find no trouble in making. Of course, where enlarging is not done, these could be made professionally from the amateur's negatives if it were desired. If the sky does not fill the entire enlargement (which will seldom be the case, since in enlarging due care must be taken to preserve a certain proportion between the clouds and the size of the landscape with which they will be used, or the combination will be absurd), the rest should be rendered quite opaque (either with some blocking-out medium or paper) to protect any part of a print which may rest upon this portion. It should hardly be necessary to remark that, if films or paper negatives be used, the printing frame will require a piece of clean glass in it on which to support the flimsy material. Before the actual printing is touched upon, it cannot be too firmly impressed upon the cloud printer that it is essential, that some sense of fitness should be shown in the selection of clouds for each negative, that due and full regard should be given to the lighting and character of the landscapes into which they are to fit. The reader may laugh at this word of caution, but it is a necessary one, for the writer has seen a smiling summer landscape obviously taken in sunlight and without a suspicion of a heavy sky, actually finished off (in more than one sense) with

threatening storm clouds; and, again, buildings strongly lighted from one side crowned with clouds as strongly lit from an *opposite* direction! So, good readers beware of such anachronisms.

Before starting upon the cloud-printing it may be necessary to cut a mask to protect the landscape or building if the sky line be very delicate or irregular, but very often such a special mask is unnecessary, and simply one or two pieces of cardboard (like those found in packets of printing paper) will serve the purpose; but, if a special mask is necessary, the best way to secure one is to paste down a waste print on a bit of card, and carefully cut away the sky. Next select a suitable cloud negative from your store, and place your print requiring a sky in position upon the most suitable portion of the chosen negative. Then, after fastening down the back, the mask can be laid over the part with which it coincides, the adjusting of which is quite a simple matter, as the picture should show through the cloud negative. The mask placed, the frame can be put out in the sun, but this necessitates keeping the shade moving all the while to obviate a palpable join; but, if the frame be left by itself out in the shade, beyond an occasional examination of the print and moving of the mask just an atom higher or lower, there is no need to stand over it—a great convenience. With platinotypes whose faint image is difficult to discern under the negative, and still more so with carbons and bromides, where there is no visible image, cloud-printing is not quite such plain sailing, as obviously the mask is not so readily adjusted. Therefore, using these papers, as a print with an only too wide join between landscape and sky, is a "waster," it behooves the printer to take especial care, since such faults do not come to light until the prints are developed. In printing clouds in carbon tissue, of course, some guide to the action of the light—some actinometer—is essential, and is also desirable in the case of platinotype. The best plan is to use on a spare part of the negative an unprinted trimming of P. O. P.

In both cases, when this is printed to the depth desired in the finished print, its companion can be safely assumed to be finished too. As a guide to the accurate placing of the mask, the back of the print should be covered by a large-sized piece

of white paper, which will show up the guides for the arranging of the mask, which guides are to be presently cut. Before the print be taken off the landscape negative, open each half of the back in turn, and raising the print exactly where the sky line begins, cut out a nick in the edges. These, thanks to the white paper, will clearly be seen through the cloud negative, and will serve as guides to accurately adjust the mask. But let it be noted that, where many prints off one negative requiring clouds or an enlargement from such are to be made, it is far less tedious to make one satisfactory print of landscape and clouds on Novitas P.O.P. and transfer it to glass, whence, a combined negative, saving all further trouble, is secured. It is hoped this paper will help some photographic "lame dog over a stile." If so, it has not been penned in vain.—*British Journal*.

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## DISTANCE

WALTER ELLIS

In the old-time books intended for the amateur photographer one was told that the best time to photograph the distance was immediately after a rain, when the atmosphere had been, so to say, washed clean. The transparency of the air under such conditions made distant peaks and horizon lines come out with microscopic distinctness, to the great delight of Monsieur Sharp-Focus. But nowadays Monsieur Sharp-Focus has no lot or portion with the elect in photo art, and the photographer of the distance does not desire the needle-like delineation, but rather the soft effect of atmosphere.

Now, my object in writing this short paper is not to treat so much upon the subject of rendering distance—though it would form a topic for discussion of what lens to use, telephoto or

other—but only to suggest that the beginner in search of artistic haze frequently defeats his object in his endeavors to make use of all the modern appliances and requisites of photography.

Orthochromatic plates and color screens are valuable accessories to the landscape photographer, but there are subjects in which one or the other, and sometimes both, are more preferable in their absence than in their presence.

It is a general opinion that the essential in a screen is its yellowness. "Anything will do," so we are told, if it is yellow; that is, cuts off in a great degree the violet and blue rays, and so its application in connection with the orthochromatic plate is made without consideration as to what results are probable. The particular color of the screen is not so much a matter of consideration as the selection of a suitable coloring matter. Some substances have the power to cut off certain rays of the spectrum or to reduce the number which passes through them, and in this manner retard the action of such rays on the sensitive surface. Hence it may happen that our zeal outruns our knowledge, and in our endeavor after the best rendition of distant atmospheric effect, by adoption of a too deep tint of yellow in our screen, we really defeat our object, prolong only unnecessarily our exposure, and get nothing so far as atmospheric effect is concerned. A very light tint, made with the proper coloring matter, will often give all that is desired and interfere but slightly with its duration of exposure.

Judgment, therefore, is necessary when the yellow screen is made use of.



**See our offer on page 349**

## A GIANT CAMERA

“**W**E have returned to the days of Galileo, or a little after his time, when astronomers used to build enormous telescopes one hundred feet or so in length,” said Secretary S. P. Langley, of the Smithsonian Institute, recently. “For the purpose of taking a photograph of the sun on the occasion of the coming eclipse, May 28th, we have set up the gigantic apparatus which you may now behold in the rear of the Smithsonian. It is a kind of a telescope, but is also a camera, and the picture it takes of the solar orb will be over a foot in diameter. The most important purpose of the apparatus is to study by photographic means the corona of the sun—that mysterious and filmy radiance which is seen enveloping the darkened celestial body at the moment of totality.”

The apparatus referred to by Mr. Langley is indeed a wonderful affair, looking in its immensity, when seen from a little distance, somewhat like the sideshow of a circus. On closer examination it is found to be shaped like a huge letter V, being composed in reality of two cameras which meet at a point. The whole affair is about 130 feet long, and at the point aforesaid is to be set an immense lens twenty inches in diameter. As one stands at the lens end, the contrivance is seen to diverge in two long cylinders of black fabric, which represent the “bellows” of the duplex camera. At the further extremities of the bellows, 130 feet away, the photographic plates, thirty inches square, will be introduced. The tenting that covers the bellows, over all of their length, is to keep off the sun’s rays, which otherwise would heat the air inside of the bellows and render it tremulous, thus interfering with optical results. In a few days the whole affair will be taken down and removed in sections southward to the path of the eclipse, which travels by way of Norfolk, where it will be in readiness for business May 23d.

"This is a telescope reduced to the simplest possible form," continued Mr. Langley, "having only a single lens and a tube. The place of the observer's eye is taken by the photographic plate, of course. We expect to get some very interesting results, but you must realize that many difficulties are involved. To begin with, we are obliged to calculate in advance exactly how the instrument shall be pointed, inasmuch as the slightest error of that kind would throw us out altogether. This is not an affair like taking out a picture of a person, who will sit for us and try again if the first negatives are not satisfactory. Indeed, there are only a few seconds during which the snapshots of the sun can be made, and then a wait of years perhaps before another total eclipse gives a chance for a repetition of the performance.

"If it were not practicable, we should set up the camera-telescope in such a way as to point it up in the air directly at the sun, but the apparatus is too large, and we are obliged on that account to rest the whole of its length upon the ground, using a mirror to reflect the image of the solar orb into the mouth of the instrument. The contrivance is double simply for the reason that two things have to be done with it simultaneously. The light reflected from the mirror is made to pass through one of the long tubes and to paint a picture of the sun upon the sensitive plate at its end; traveling through the other tube, it is broken up by a great prism into the various colors of the spectrum, a picture of which is taken by the second sensitive plate. Thus we shall have two photographs made at once, you understand—one of the eclipsed sun, and the other of the sun's spectrum.

"Obviously, the photograph of the spectrum does not show the colors, because we do not know yet how to make color photographs, but it does exhibit the peculiar lines which are now known to represent various elements of which the sun is composed, such as hydrogen and different metals, all of them in a gaseous condition. The most important object of the work, however, is to picture the solar corona, which is visible only during the brief period of a total eclipse. As yet we do not know the nature of the corona, which may well be considered as constituting one of the most interesting problems in astronomy. For the observation of such phenomena the

camera has advantages over the eye ; for, though the latter is a good instrument, behind it is a brain that may be overwrought with excitement, whereas the camera has no nerves, and what it sets down may be relied upon.

" If we had an opportunity to stand near the orbit of the moon, as a person might occupy a place close by one point of an elliptical race track, we would see the lunar orb rush by us with terrific speed, like a cannon ball in full flight. On the earth, when a total eclipse occurs, the shadow of the moon rushes along with the moon's own tremendous velocity. It is really a terrifying spectacle, and the seeming is as if something material and awful swept over the earth. As the black body of the moon advances slowly over the sun there is nothing very noteworthy until the sun is very nearly covered, nor does the light appear to be much diminished ; but when the sun's face is reduced to a very narrow crescent, there is a sudden and startling change. The light is not only dimmed rapidly, but becomes of a kind unknown before, a pallid aspect spreading over the face of the earth with an ugly livid hue.

" As the strange wanness increases, a mysterious cold seems to come with it. The impression is of something unnatural, but there is only a moment in which to note it, for the sun soon goes out as suddenly as a blown-out gas-jet, and one is as suddenly aware that all round where it was, there has been growing a kind of ghostly radiance composed of separate pearly beams looking distinct from each other, as though the black disk where the sun once was did bristle actually with pale streamers stretching far away from it in a sort of crown. This is the famous corona, the structure of the inner part of which is filled with curious detail. Meanwhile, close to the black body of the moon are seen prominences of vivid crimson and scarlet, rising up like mountains from the hidden solar disk.

" The moon at that same instant assumes a globular appearance that is very curious. Ordinarily, she looks like a bright, flat disk fastened to the concave of the starry vault, but now, owing to her unwonted illumination, her actual rotundity is apparent, and she is observed as she really is—a monstrous, solid globe, suspended by an invisible support above the earth and with nothing seemingly to keep it from tumbling upon us. She looks at the moment very near, and more than anything

else like a gigantic black cannon-ball, hung by some miracle in the air. But in a few seconds all is over ; the sunlight flashes from one point of the moon's edge to another almost simultaneously, like sudden kindled electric lights, and it is day again."—*Washington cor. Boston Transcript.*

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## POTASSIUM BOROTARTRATE—A NEW RESTRAINER

BY R. R. RAWKINS

"**E**XPOSE for the shadows" is the golden rule that all photographers endeavor to keep to, and various methods of development are adopted in order to prevent a general blocking-up of the high lights before the shadows have gained sufficient strength.

Potassium bromide as a restrainer in such a case seems to prolong development without any appreciable advantage accruing, and in addition shortens the scale of gradation to some extent, whilst the citrates are unsuitable owing to the strong tendency to cut out the shadow detail.

Probably the most used method of dealing with strong contrasts is in watering the developer, but some months ago Mr. Ben. E. Edwards suggested the use of potassium borotartrate as a restrainer which effectively prevented the high lights from gaining density beyond a certain point, but did not slow the plate, or interfere with the shadow detail.

Bottles containing one ounce of this chemical in white shining crystals are now supplied by R. W. Thomas & Co., Ltd., at one shilling. It should be made up in a ten per cent. solution, using ten to thirty minims to each ounce of mixed developer, according to the subject.

During the last few weeks I have made a number of experiments with this chemical, and there is no doubt that it will do all Mr. Edwards claims for it if used with pyro or kachin, but with hydrokinone and glycine its action is not so marked.

An exposure of thirty seconds at f/16 (Bee plate) was the reading obtained on a Wynne's meter as being the correct exposure for the shadows, and accordingly two plates were exposed for that time from the same standpoint.

One was developed in normal pyro-soda with one grain of potassium bromide to each ounce of developer, the high lights becoming blocked up before the shadows had gained sufficient strength. The other plate, developed with pyro-soda of the same strength, minus the bromide, but with twenty-five minimis of a ten per cent. solution of borotartrate to each ounce of developer, gave a result far superior to the first. The high lights did not gain in density beyond a reasonable point, in spite of continued development, and the shadows slowly gained the required strength without loss of detail.

The behavior of the plate was very curious, the image being strongly visible at the back of the negative long before development was complete, whilst a general veil made it rather difficult to judge the density of the shadows. It is as well to point out, however, that after the plate had been fixed this fog disappeared.—*Photography*.



**See our offer on page 349**

## LANDSCAPE

**T**HREE is very much information about landscape photography accessible to the photographer in search of the picturesque, but the difficulty lies in the proper application of the knowledge of the essentials which go to make up an artistic landscape.

It is wholesome advice to recommend the beginner to avoid scattering subjects, but even when he starts out with the intention of obeying the injunction he still finds it a most difficult task to compose a picture or to unify the various elements in the scene.

There are so many objects presented to him which seem of equal consequence that his artistic eye is distracted, and he looks in vain for suitable contrasts or for some emphatic light to give harmony to the composition. Unity in variety, the subordination of many to one is the fundamental principle involved in the production of a picture. The balancing of lines or masses of light and shade is the means of securing this unity in variety. In searching for a picture in nature suited to art reproduction endeavor to find one with an open centre, so that one may have a glimpse of the distance, and this centre of light should be relieved on either side by two masses of shade, half shade or deep shadow.

So contrasted, the composition leads the eye gradually into the picture preventing too sudden a transition from foreground to the distance. Very often a most effective composition is produced by having the masses of light and shade on the side of the picture of different dimensions, the smaller mass combatting with the larger mass by having more interest to attract greater attention.

The position of the horizon line is also to be considered in selection of point of view. The height of the horizon depends upon the character of the subject. When the foreground of the view is full of interest, as in the case with many of our

best modern artistic landscapes, the horizon must be placed high on the plate and the sky occupy a minor portion of the scene.

And by the way, I think the camera has taught the artist the value and beauty to be found in a harmonious but complex foreground. The old school of landscape painters, and of course the old time landscape photographer used to look askance and doubting at these complex foregrounds presented in nature, but after a time they (I mean both) learned to see the rich source offered for pictorial effect.

When the foreground is not naturally interesting, or cannot be made naturally interesting, let the photographer look to the sky for help, for in the majority of cases grandeur in the scene may be secured by striking a rather low line of horizon. Flat plains or sea beach have a more imposing look when the sky occupies as much as three-fourths of the plate. This is so even when the sky is devoid of clouds, but the grandeur is increased when the sky is furnished with clouds. In such pictures expanse of sky gives effect of atmosphere and space, but when mountains are in the scene the horizon must be taken higher, because it thus adds dignity to the mountains by apparently increasing their altitude.

A low horizon in such a picture inordinately dwarfs the majesty of the scene.

Much knowledge may be had from a study of the landscape painters of the marvelous effect upon the scene of the quality or intensity of the light pervading the picture. Every observant person has perceived the wonderful transformation effected in a scene viewed under a vertical or nearly vertical light when presented with the sun low down upon the horizon. Effects of illumination are heightened by attention to that which relates to peculiar arrangement and contrast of light and dark. The photographic lens renders only one plane perfectly distinct and so unduly emphasizes the detail of that plane. Therefore it is not a good plane to select for artistic effect in the presentation of the subject upon the ground glass. Had we a diffusion focus objective there would be better opportunity offered to judge of the relative effect of the different planes of the picture. The plan recommended of throwing the lens out of focus does not meet the difficulty, since even then there is

no equalization of planes. A better plan is to look at the view artistically considered through the half closed eyes whereby the detail is obliterated and the whole scene is equally out of focus.

To the trained eye most scenes so viewed present a mass of conflicting, distracting spots of light and shade and are not worth an exposure. But when the scene presents a mass of quiet shadow relieved with deeper tones and contrasted with a small area of high light, seize on it at once and expose several plates upon it for fear you may mar its beauty (if only one is taken) by improper development.

I have said something which might be interpreted to mean that I was an advocate of the fuzzy school of photography. But it is not high finish or expression of detail which is objectionable, but tastelessness of finish or detail in the wrong place. I think that an all over sharp photograph is almost as bad as an all over fuzzy one.

Detail must be subordinated to general effect and not be obtrusively presented in portions in which it is better to repress it as much as possible.

We do not account the Dutch painters great because we can in some of their pictures actually count the threads in the embroidery. The immortality of their work is dependent upon other qualities than intense reproductions of the real. Neither do we accuse Sir Joshua Reynolds of a want of accuracy to nature because in his picture of "Dido" he merely indicates the wound in side of the Carthaginian Queen by a slight touch of red paint instead of making it so exact as to be of pathological value to the student of surgery but disgusting to the man of artistic perception.



**See our offer on page 349**

## WHY NOT KACHIN?

GEO. GIBSON

**W**HY have not photographers caught on to Kachin? One often hears the desire expressed for a developer having the density giving qualities of pyro with the attendant virtues of the new reagents. In my opinion Kachin meets this wish completely, and yet I hardly know a single professional who uses it. The keeping qualities, both of the undissolved and the dissolved crystals is far ahead of any of the new developers. It dissolves in water with almost the celerity of pyro, and the same solution may be used again and again, and be kept for a day or two exposed to the air without deterioration. The best formula for a two solution developer is the following:

(A)	Water.....	10 ounces.
	Sodium Sulphite.....	220 grains.
	Kachin.....	75 "
(B)	Water.....	10 ounces.
	Caustic Soda.....	75 grains.
	Phosphate Soda.....	1½ ounces.

Use equal parts of A and B with equal bulk of water.

Dissolve the caustic soda first then add the phosphate of soda. The action of this developer with a properly exposed plate is very rapid, even more so than with Metol developer.

There is no necessity of carrying on the developing for density as Kachin developed plates do not reduce in the hypo as is the case with some of the other developers.

The complete negative is remarkably clear in the shadows and the deposit is particularly fine grained. Kachin is, therefore, well adapted to transparencies for the lantern, and the character of the negative produced being vigorous and plucky furnishes excellent prints with platinum paper or carbon tissue.

With the use of bromide of potassium Kachin forms an

excellent developer for over-exposures, the bromide seeming to act more energetically than it does with any other developer.

Kachin is also an ideal developer for bromide papers. Of course it is used much more diluted than when used in developing negatives or lantern slides. The following will be found best adapted to paper :

Water .....	8 ounces.
Sulphite Soda.....	100 grains.
Carbonate of Soda (cryst.).....	180 "
Kachin.....	30 "

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## PHILADELPHIA PHOTOGRAPHIC SALON, 1900

THE Pennsylvania Academy of the Fine Arts has the honor to announce that under joint management with The Photographic Society of Philadelphia, the Philadelphia Photographic Salon for 1900 (third year) will be held in the Galleries of the Academy, Broad Street, above Arch, from October 21 to November 18, 1900.

The purpose of the Salon is to exhibit that class of work only in which there is distinct evidence of individual artistic feeling and execution, the pictures to be rigidly selected by a competent jury.

Pictures which have already been shown in Philadelphia at any exhibition open to the general public will be liable to expulsion.

No awards are offered; and no charge will be made to exhibitors. Each exhibitor will be furnished with a catalogue, which will be the official notification of acceptance.

No exhibitor may submit more than ten pictures, each of which must be framed separately.

The title of each picture and the exhibitor's name must be clearly written on the label provided, which must be attached by the exhibitor to the back of each picture. Nothing may appear on front of picture except the title and exhibitor's name.

No accepted pictures may be removed before the close of the exhibition.

Arrangement will be made for the sale of pictures if desired, subject to a commission of fifteen per cent.

All communications and all pictures submitted for exhibition must be addressed to the Pennsylvania Academy of the Fine Arts, Broad Street, above Arch, Philadelphia, Penna., U. S. A.

All pictures must be forwarded at the owner's risk, carriage prepaid, and delivered at the Academy not later than 5 P. M., Monday, October 1, 1900.

Return charges must be collected by carrier.

The following reliable forwarders are suggested for the convenience of foreign contributors:

Messrs. William Whiteley, Ltd., 151 Queen's Road, Bayswater, London, W., England.

Messrs. Guinchard & Fourniret, 76 Rue Blanche, Paris.

Messrs. Uhlman & Co., Hamburg, Germany.

The management will use all reasonable care to prevent any loss or damage to pictures in its charge, but will not be responsible for such occurrence.

Jury of Selection—Mr. Alfred Stieglitz, New York; Mrs. Gertrude Käseber, Brooklyn; Mr. Clarence H. White, Newark, Ohio; Mr. Frank Eugene, New York; Miss Eva Lawrence Watson, Philadelphia.

The Pennsylvania Academy of the Fine Arts—Edward H. Coates, President; Harrison S. Morris, Secretary.

The Photographic Society of Philadelphia—Robert S. Redfield, John G. Bullock, Edmund Stirling.

PHILADELPHIA, PA., U. S. A., May 1, 1900.



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These certificates must be left with the Treasurer when you enter the Exposition building. A failure to bring certificate or the neglect to leave it with the Treasurer will prevent you from obtaining the reduction on return trip. All certificates must be in the Treasurer's hands on or before Wednesday, the 25th of July.

The following from the office of the Western Passenger Association may be of help in purchasing tickets.

"Under our rules certificates will be honored which show the purchase of going tickets not earlier than three days prior to the date announced as the opening date of the meeting, and during the first three days thereof, and if presented for return tickets not later than three days after the date announced as the closing date of the meeting (Sunday not to be accounted as a day in any case.)"

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It will be held in a centrally-located and well-lighted hall. Wall and counter space will be apportioned to exhibitors, who will have the privilege of fitting up and decorating to suit their own taste, subject to such necessary rules as may be agreed upon. The rates will be 15 cents per square for floor space and 7½ cents per square foot for wall space.

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## LITERARY NOTES

**Bird Studies with a Camera**, (Frank M. Chapman ; D. Appleton & Co.). The camera has been very properly qualified with the term ubiquitous, since it is truly everywhere and for every purpose under heaven called in requisition ; to investigate, to unearth hidden things, to pry into the very secrets of nature and to catch her unawares. This most delightful book before us, however, introduces us to " new fields and pastures fair " for the camera.

When we study nature, we do not want to hear the harangue of the exhibitor, we want to see the exhibition itself, and to study and understand it in our own way. The author, in a most charming style, shows how the camera may be made the means of depicting the life history of birds, and of detailing their habits in conjunction with their surroundings. A

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true biography of the feathered tribes. As the author says, "A photograph of a marsh or wood, showing the favorite haunts of a species, is worth more than pages of description." In depicting the haunts, nesting sites, nests, eggs, the appearance and development of the young, the camera is far ahead of the pen in the power of graphic representation, and infinitely more accurate and true in delineation than the most skilled pencil of the artist. Not only is the book descriptive in the true sense of the term, and fascinating from the ardor and enthusiasm with which the life histories are delineated, but it is also practical ; describing accurately and fully the kinds of camera, lenses and other paraphernalia for securing these charming vignettes of nature and the modes of approaching the haunts of the birds and the means of winning their confidence, so as to secure them in their most charming and characteristic attitudes.

To add to this, the book is most beautifully illustrated with more than a hundred photographs, direct from nature.

To all who are desirous of carrying their cameras into "a new field of sport previously closed to those who love birds too much to find pleasure in killing them," this book of Mr. Chapman's will furnish the open door.

**The wonderful qualities** of the various kinds of glass now made under the name Jena make possible lenses of a character which a few years ago would have been considered chimerical.

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**Mr. Paulsen**, in *Comptes Rendus*, gives an account of his work in photographing the spectra of the aurora borealis. The photographs were taken in Iceland, during brilliant displays, last December and January. Some of the lines he exhibits

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Fendall Building, Washington, D. C.

IN THEORY  
AND PRACTICE

have never been registered before. To prevent absorption of the ultra violet rays, Mr. Paulson employed quartz prisms in his spectroscope, the glass prism in the ordinary apparatus not acting very efficiently when the dispersion is brought about.

**Of all the various** color processes, the Ives method has been selected by the University of Oxford for the purpose of illustrating a scientific expedition. In a recent report to the Royal Geographical Society of London, Prof. H. J. Mackinnen exhibited a number of pictures of Mount Kenia, in Africa, which lies directly under the equator. The tropical scenery is depicted with all the glowing colors of nature. The pictures created much enthusiasm and all who saw them expressed not only admiration for the beautiful effect produced, but also for their great value from a scientific standpoint.

**Investigations** of the Becquerel ray phenomena continue to grow more and more interesting. The source of the energy evolved is still a mystery.

It seems incredible that so inexhaustable a stream of rays should continue to emanate unabated in vigor for more than six months, from the substances which yield them, even when kept in a vacuum.

These rays, it is well known now, are capable of converting oxygen into ozone, reducing salts of silver and causing fluorescence in screens. It seems as if they are generated from nothing, and it is probable that future investigation may discover something which may lead to practical results.

Becquerel and Curie have made it evident that the so-called Becquerel rays are of different kinds; some are deflected by a magnet, while others are not at all influenced by it. The polonium rays are amongst those not affected. They are propagated in straight lines in the strongest magnetic field, and yet they have very little penetrating power.

The Radium rays, on the other hand, are deflected by a magnet and have considerable penetrating power.

It is inconceivable where the rays come from, since the substances emitting them lose no weight. Investigation may enlighten us presently.

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**We are glad to learn** that Mr. H. P. Robinson, who was stricken with paralysis last October, has so far recovered as to write letters to the *British Journal of Photography*, in which he says he is getting better in many ways.

He has been in bed nearly the whole of the time since last October, and he therefore characteristically remarks: "It is fortunate that I prepared my Exhibition pictures last autumn." The forthcoming Exhibitions of the R. P. S. and the Salon, will, no doubt, contain some of his work. Within the last few months, it may be remembered, the Council of the Royal Photographic Society conferred the Hon. Fellowship of the Society upon Mr. Robinson. He has been having a very bad time indeed during the winter, but his letter convinces us that he has so far recovered as to be able to resume his active interest in photographic matters, and we are confident we are but voicing the general wish that he should be speedily and fully restored to robust health. This is the hearty wish of every one who knows the genial writer.

**In a recent number of *Photo Correspondenz*,** Professor Valenta describes his experiments with phosphate of silver, and finds that paper prepared according to the method invented by Dr. Meyers, of New York, is rather insensitive, only about one-third as sensitive as albumen paper, while the scale of gradation is less than that of albumen paper.

Further experiments were then made in the direction of replacing the silver chloride by silver phosphate in the ordinary emulsion process. His results were very successful and he succeeded in making a paper which excelled in sensitiveness, collodion high gloss paper, and at the same time gave rich, vigorous prints which could be toned in the usual way. His formula for preparing the emulsion is as follows:

Place in a bottle 1500 c. c. of a four per cent. collodion with from 250 to 300 c. c. of ether, and to this solution add from 20 to 25 c. c. of phosphoric acid of specific gravity 1.265 at 15° C., corresponding to a proportion of forty per cent. solution, to this then add from 50 to 60 grammes of citric acid dissolved in 100 c. c. of absolute alcohol. Now dissolve from 70 to 75 grammes of silver nitrate in 75 to 80 c. c. of water, and add 150 c. c. of alcohol. The silver solution thus ob-

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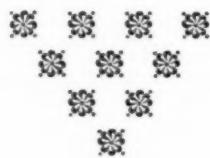
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tained is added in the dark room by yellow light to the collodion, the bottle being vigorously shaken all the time.

The phosphoric acid reacts with the silver nitrate, and the silver phosphate formed is suspended in the collodion, and forms a yellow emulsion, which contains, besides phosphate of silver, citrate of silver, in order to make the nitrate acid set free harmless, from four to eight grammes of finely powdered lithium carbonate should be added to the emulsion, and the whole well shaken till there is no longer an evolution of carbonic acid gas. Then there should be added 20 c. c. of a solution of equal parts of glycerine and alcohol, and the emulsion filtered through cotton-wool.

The coating of paper with this emulsion can be effected as easily and regularly as with any good collodio-chloride of silver emulsion, and a printing-out paper is obtained which has, according to the kind of baryta paper used, either a glossy or matt surface.

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## BUSINESS NOTES

**Hyatt's Rival Retouching Outfit**, put up by H. A. Hyatt, St. Louis, is a most convenient accessory to the photographer who does his own retouching. It contains everything requisite and withal is very cheap.

**In our last issue** we gave as illustration a photograph of the eclipse of the sun. We regret that we had not seen the beautiful view of the eclipse made by Berry, Homer & Co., of this city. It was a bromide enlargement, and besides being most artistically done, was technically perfect. But this firm has a wide reputation for excellent work in bromide enlargements which accounts for the beauty of the eclipse pictures.

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**U. Nehring**, of 16 E. 42nd St., N. Y., has issued a catalogue from which we learn that he manufactures what he calls Multichromatic Amplisopes which are said to be a contrivance by means of which 100 distinctly different lens combinations may be obtained which can be applied to any rectilinear lens. We have not had opportunity of examining the appliance but hope presently to be afforded a chance. The price is phenomenally low considering the varied services the contrivance is said to do in the field of photography.

**We have received** from G. Gennert, New York, the general catalogue for 1900, containing a graphic description of their specialties, including an account of their famous Hauff developers.

Also a copy of the Montauk pamphlet. This contains several new styles of cameras which possess many novel features for those who, like the Athenians, are constantly looking for some new thing in cameras. The letter accompanying these catalogues informs us that Ortol developer has been very successfully employed for the development of Velox and bromide papers, giving clear, pure blacks, and clean, brilliant whites in the picture.

**Photographers of an artistic turn** (and they all are that now-a-days) will be interested to know that D. E. Abbott, of Huntington, W. Va., issues a catalogue describing his artistic enlargements; platinoids, royal etchings, crayons and water colors.

**William N. Jennings** and Frank M. Sawyer, who have been associated with Mr. Ives for the last four years in the devel-

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oping and perfecting of the marvellous Krömsköp, have opened an establishment at 1213 Filbert St., Room 613, Heed Building, Philadelphia, thoroughly equipped with all the modern appliances of the art; where under the term photography, they are prepared to carry out anything photographic. Their experience in delicate manipulation is sure of giving satisfaction. We are informed that they are at work upon a number of photographic novelties of which we shall give our readers particulars in the near future.

**The firm of** Pancoast & Hand, which has existed for a number of years, has dissolved, Mr. Hand retiring. The business will be continued at the old place, 1215 Filbert St., Phila., by Mr. Charles R. Pancoast, an expert in all that pertains to photography. Mr. Pancoast will still give instruction in photography to amateurs, and a better instructor could not be found anywhere.

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### RECENT PATENTS RELATING TO PHOTOGRAPHY

- 651,691. Apparatus for displaying photographs of moving objects, Mark Barr, Bowdon, England.
- 651,521. Photographic camera support, Wm. R. Bigsby-Chamberlain, Eastbourne, England.
- 651,494. Feeding mechanism for films in kinematographs, Vilhelm Pacht, Copenhagen, Denmark.
- 651,641. Photographic vignetter, Charles Vongerichten, St. Louis, Mo.
- 651,043. Photograph album, George H. Kent, Cambridge, Mass.
- 651,118. Roll-holding camera, Francois Pascal and L. Izerable, Lyons, France.
- 651,056. Photographic printing frame, John A. Ricketts, Ithaca, N. Y.



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650,504. Easel, Edmond Dyonnet, Montreal, Canada.

650,732. Picture cabinet, Lafayette J. Sanborn, Davenport, Wash.

650,660. Photographic plate-clip, Edward T. Schoonmaker, New York, N. Y.

650,622. Photographic developing apparatus, Rudolph Unger, New York, N. Y.

32,732. Design, picture frame, Oeds T. Kniper, Olean, N. Y.

650,308. Focussing-hood for cameras, Thomas J. Demorest, Garfield, Wash.

650,252. Magazine camera, Ilija I. Karpoff, St. Petersburg, Russia.

649,954. Producing half-tone negatives, George G. Rockwood, New York, N. Y.

649,627. Mailing-envelope for photographs, John Burton, Anderson, Ind.

649,630. Picture Frame, Robert J. Debacher, New York, N. Y.

649,723. Photographic plate-lifter, Walter C. Fischer and F C. Schade, St. Paul, Minn.

649,730. Photographic printing apparatus, Charles F. Jenkins, Richmond, Ind.

649,485. Exhibition card, Ferdinand Schmetz, Herzogenrath, Germany.

Copies of above patents may be obtained for ten cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.







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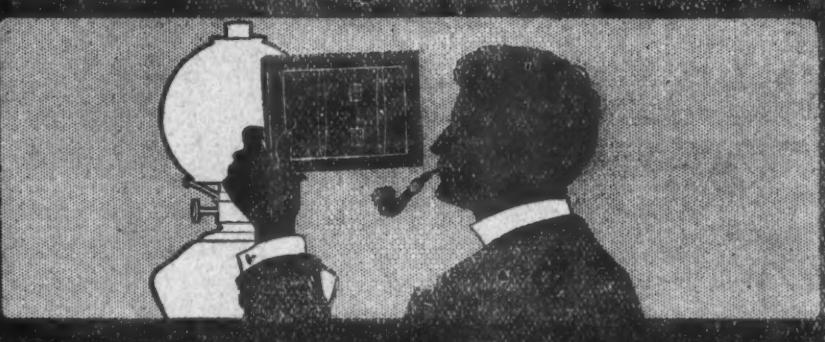
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